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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/582,939	10/27/2000	Ulrik Pagh Schultz	P-5857	4543

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EXAMINER
NAHAR, QAMRUN

ART UNIT	PAPER NUMBER
2124	6

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev 07-01)

	Application No.	Applicant(s)
Office Action Summary	09/582,939	SCHULTZ ET AL.
	Examiner	**Art Unit**
	Qamrun Nahar	2124

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _27 October 2000_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-11_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-11_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _27 October 2000_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _5_ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Claims 1-11 have been examined.

Information Disclosure Statement

2.   The information disclosure statement filed 10/17/00 fails to comply with 37 CFR

1.98(a)(3) because it does not include a concise explanation of the relevance, as it is

presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable

about the content of the information, of each patent listed that is not in the English

language. It has been placed in the application file, but the information referred to

therein has not been considered.

Specification

3.   This application does not contain an abstract of the disclosure as required by 37

CFR 1.72(b). An abstract on a separate sheet is required.

4.   The following guidelines illustrate the preferred layout for the specification of a
utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

   As provided in 37 CFR 1.77(b), the specification of a utility application should
include the following sections in order. Each of the lettered items should appear in upper
case, without underlining or bold type, as a section heading. If no text follows the section
heading, the phrase "Not Applicable" should follow the section heading:

   (a) TITLE OF THE INVENTION.
   (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
   (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR
         DEVELOPMENT.
   (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A
         COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer

program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR
1.821(c)), and tables having more than 50 pages of text are permitted to be
submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP §
608.05(a). "Microfiche Appendices" were accepted by the Office until
March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37
    CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE
    DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A
    "Sequence Listing" is required on paper if the application discloses a
    nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if
    the required "Sequence Listing" is not submitted as an electronic
    document on compact disc).

5.   The disclosure is objected to because of the following informalities: on page 5 of

the specification, list the descriptions of figures 1a to 1c.

Appropriate correction is required.

6.   The disclosure is objected to because of the following informalities: the

specification replete with the word "programme", which should be "program".

Appropriate correction is required.

Claim Objections

7.   Claims 1, 3, 4, 5, 7 and 10 are objected to because of the following informalities:

"programme" should be "program". Appropriate correction is required.

8. Claim 1 is objected to because of the following informalities: "optimised" on line 3 of page 29 should be "optimized". Appropriate correction is required.

9. Claim 3 is objected to because of the following informalities: "programmes" on line 2 of the claim should be "programs". Appropriate correction is required.

10. Claim 4 is objected to because of the following informalities: "by applying a compaction method as claimed in claim 1" on lines 2-3 of the claim should be "by applying a compaction method". Claim 4 is presumed to be an independent claim because the preamble is different from claim 1. Appropriate correction is required.

11. Claim 4 is objected to because of the following informalities: "recognising" on line 26 of page 29 should be "recognizing". Appropriate correction is required.

12. Claim 4 is objected to because of the following informalities: it is missing a period. Appropriate correction is required.

13. Claim 7 is objected to because of the following informalities: "optimised" on line 9 of page 31 should be "optimized". Appropriate correction is required.

14. Claim 10 is objected to because of the following informalities: "analysing" on line 28 of page 31 should be "analyzing". Appropriate correction is required.

Claim Rejections - 35 USC § 112

15.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16.   Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "said programme language interpreter" in lines 30-31 of page 29. There is insufficient antecedent basis for this limitation in the claim. This limitation is interpreted as "a program language interpreter".

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18.   Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siska (U.S. 6,263,429) in view of Wilkinson (U.S. 6,308,317).

Per Claim 1:

Siska teaches a method of compacting a program consisting of a sequence of standard instructions, used in a system, said system being provided with a memory ("The

present invention preferably provides a technique for compressing a program utilized by

an embedded processor without significantly degrading the performance of the embedded

processor. Additionally, the compression technique of the present invention may

preferably be utilized on individual code modules, linked executables, non-emdedded

processor programs, and any other sequence of lines of code." in column 5, lines 33-39

and Fig. 2), a) searching through said program for identical sequences of successive

standard instructions ("As shown in the flow chart in Fig. 3a, the compression method of

the present invention preferably begins with searching a program for identical sequences

of lines of code, sequences of lines of code which include repeated patterns, and the like

using standard sequence identification techniques (step 300)." in column 7, lines 42-47),

b) subjecting said identical sequences of successive instructions to a comparison test to

find a function, based on at least the number of occurrences of these sequences in said

program, that is higher than a reference value and, if the test returns a positive response,

for each identical sequence of successive standard instructions which satisfies said test

step ("Numerous sequence identification schemes are commonly known in the art, the

present invention does not address the method of finding sequences of lines of code,

hence any method, including the use of wildcards, greedy algorithms, or the like may be

suitably utilized in the present invention to identify sequences of lines of code which

occur with enough frequency to justify compression. ... Once the examination of the

program for common sequences is accomplished, one of the collections is selected (step

301). The basis of this selection is preferably that replacement in the program of each

sequence in the collection by a microcall results in the greatest compression of all the

collections which might be so selected." in column 7, lines 49-56; column 7, lines 64-67

to column 8, lines 1-5), c) generating a specific instruction by defining a specific

operating code and associating said specific operating code with the sequence of

successive standard instructions which satisfied said test ("After a collection is identified

in step 301, preferably one incidence of the sequence of lines of codes from the identified

collection is preferably designated as a microroutine (step 302)." in column 8, lines 6-9),

d) replacing each occurrence of each sequence of standard successive instructions in said

program with said specific operating code associated with it to obtain a compacted

program, consisting of a series of standard instructions and specific operating codes ("If

the microroutine selected in step 302 fits within the MCA 216, then the microroutine is

suitably saved in the MCA 216 (step 305). Additionally, each sequence of lines of code

in the collection is replaced in the program by a microcall to the saved microroutine (step

306)." in column 8, lines 24-28), e) storing in said memory an execution table which

enables a reciprocal link to be established between each specific operating code inserted

and the sequence of successive standard instructions associated with the latter, thereby

enabling the memory space occupied by said compacted program to be optimized by

storing only one occurrence of said identical sequences of successive standard

instructions in said memory ("The cache memory 206 preferably includes a Micro Code

Area ("MCA") 216 (within which microroutines are suitably stored) and a Microroutine

Contiguity Table ("MCT") 218. The non-cache memory 208 preferably contains storage

locations for at least one program 210 which can be further subdivided into individual

lines of code interspersed with microcalls 214." in column 7, lines 24-33).

Siska does not explicitly teach an on-board system or an intermediate program or a program language interpreter capable of turning the intermediate program into instructions of an object code that can be run directly by a microprocessor.

Wilkinson teaches an on-board system, an intermediate program and a program language interpreter capable of turning the intermediate program into instructions of an object code that can be run directly by a microprocessor ("In general, in another aspect, the invention features a smart card. The smart card includes a memory that stores a Java interpreter and a processor that is configured to use the interpreter to interpret a Java application for execution. ... The first and/or second applications may include byte codes, such as Java byte codes." in column 5, lines 10-13 and lines 41-45).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Siska to include an on-board system, an intermediate program and a program language interpreter capable of turning the intermediate program into instructions of an object code that can be run directly by a microprocessor using the teaching of Wilkinson. The modification would be obvious because one of ordinary skill in the art would be motivated to generate faster running machine code for a portable processor.

Per Claim 2:

The rejection of claim 1 is incorporated, and Siska further teaches wherein said function is also a function of the size of each identical sequence of successive instructions (column 8, lines 9-23).

Per Claim 3:

The rejection of claim 1 is incorporated, and Siska further teaches wherein in order to compress a plurality of intermediate programs, said method also consists in: storing said execution table relating to at least one compacted intermediate program and, for every additional intermediate program subjected to a compaction process (column 13, lines 10-24), reading said stored execution table (column 13, lines 10-20 and lines 38-43), running the compaction process for every additional program, taking account of the specific codes and instructions stored in said execution table (column 13, lines 21-37).

Per Claim 4 (as best understood):

Siska teaches a method of running a compacted program obtained by applying a compaction method, said compacted program consisting of a succession of standard instructions and specific operating codes stored in the memory of a system (column 13, lines 10-37), recognizing in said memory the existence of a stored execution table containing at least one sequence of successive instructions associated with a specific operating code by means of a reciprocal link (column 13, lines 10-20 and lines 38-52), calling up a command to read the successive standard instructions or specific operating codes of said compacted program, in the presence of a specific operating code: retrieving said sequence of successive instructions associated with said specific operating code from the memory by means of a read instruction (column 13, lines 38-43), in the presence of a standard instruction, commanding the execution of said standard instruction by means of a read instruction (column 13, lines 28-37). Siska does not explicitly teach an on-board system or an intermediate program or a program language interpreter. Wilkinson teaches

an on-board system, an intermediate program and a program language interpreter (column 5, lines 10-13 and lines 41-45).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Siska to include an on-board system, an intermediate program and a program language interpreter using the teaching of Wilkinson. The modification would be obvious because one of ordinary skill in the art would be motivated to generate faster running machine code for a portable processor.

Per Claim 5:

The rejection of claim 4 is incorporated, and Siska further teaches wherein if a sequence of successive instructions associated with a specific operating code is called up, the current value of a program counter is incremented in a stack associated with the specific operating codes and a program pointer points to the first instruction of said sequence of specific instructions, after which, on running an instruction to end the sequence of specific instructions, said program counter is decremented and the execution process continues starting with the next instruction or specific operating code (column 13, lines 43-61).

Per Claim 6:

The rejection of claim 5 is incorporated, and Siska further teaches wherein the stack associated with the specific operating codes and the stack associated with the standard instructions are a single stack (column 13, lines 43-52).

Per Claim 7:

This is a system version of the claimed method discussed above, claim 1, wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 8:

The rejection of claim 7 is incorporated, and Siska further teaches wherein said execution table comprises at least: a file of successive sequences corresponding to said specific instruction codes (column 13, lines 38-43), and a table of specific instruction codes and addresses at which said specific instruction codes are embedded in the table of successive sequences (column 13, lines 43-52).

Per Claim 9:

The rejection of claim 8 is incorporated, and the combination of Siska and Wilkinson further teaches wherein said file of successive sequences corresponding to said specific instruction codes and said table of specific instruction codes are stored in a programmable memory (Siska, column 13, lines 10-20) of said on-board system (Wilkinson, column 5, lines 10-13).

Per Claims 10-11:

These are compaction system versions of the claimed method discussed above (claims 1 and 2), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Conclusion

19.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20.   Any inquiry concerning this communication from the examiner should be directed to Qamrun Nahar whose telephone number is (703) 305-7699. The examiner can normally be reached on Mondays through Thursdays from 9:00 AM to 6:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone number for the organization where this application or processing is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

KAKALI CHAKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

QN
June 15, 2003